

COMMISSION OF THE EUROPEAN COMMUNITIES

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Brussels, 12 June 1991

Proposal for a
COUNCIL DIRECTIVE
on the frequency bands to be designated for the
coordinated introduction of digital short-range radio
(DSRR) in the Community

(presented by the Commission)

EXPLANATORY MEMORANDUM

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1. Introduction

1.1 Background

As foreseen in the Commission's 1987 Green Paper on the development of the common market for telecommunications services and equipment, future intra-Community communications will depend on achieving Europe-wide compatibility and interoperability of current and future services, including mobile communications, which should be provided universally at a European level. These requirements must be based in particular on Decision 87/95/EEC of 22 December 1986 on standardization in the field of information technology and telecommunications,¹ Council Directive 83/189/EEC of 28 March 1983 establishing a procedure for the provision of information in the field of technical standards and regulations,² as amended by Directive 88/182/EEC, and Council Recommendation 84/549/EEC of 12 November 1984 on the implementation of harmonization in the field of telecommunications.³

For its part, the European Parliament has requested that the current general incompatibility of mobile communications systems be resolved, and that work towards Community-wide mobile communications be undertaken.⁴

The Commission's June 1987 Green Paper on telecommunications included a proposal to set up a European Telecommunications Standards Institute (ETSI). This has resulted in a major reform of the European standards-setting process with the establishment of ETSI in March 1988 in Sophia-Antipolis, near Nice in France. ETSI has instructed its Technical Subcommittee RES 7 to produce a standard for digital short-range radio by the end of 1990.

1 OJ No L 36, 7.2.1987, p. 31.

2 OJ No L 109, 26.4.1983, p. 8.

3 OJ No L 298, 16.11.1984, p. 49.

4 European Parliament report on telecommunications in the Community (Leonardi report), doc. 1.1477/3 of 3 March 1984.

1.2 The current state of short-range mobile communications in the Community

In the early 1980s the United Kingdom allocated the 933-935 MHz frequency band to CB (Citizen's Band Radio) in order to limit the spread of 27 MHz equipment. However, the United Kingdom did not get the support of the other European administrations and CEPT adopted a recommendation on a 27 MHz CB service. Japan, however, had prepared analogue equipment equivalent to CB equipment for the 933-935 MHz frequency band. The Europeans subsequently reached agreement within CEPT to use the 933-935 MHz band for digital equipment. The basic idea was to have low-power (1 Watt) portable equipment. When ETSI was set up, the working party responsible for drafting specifications for the equipment was transferred from CEPT to ETSI (RES). At the same time, CEPT adopted Recommendation T/R 24-04 allocating the frequency bands 933-935 MHz and 888-890 MHz for short-range digital communications. It also recommended that this system should be capable of using both the simplex and duplex mode. The 933-935 MHz frequency band is used in the simplex mode and, in the semi-duplex mode, communications can take place in the associated 888-890 MHz band.

1.3 Market opportunities and requirements

It is difficult to make accurate projections of the demand for DSRR in view of the variety of services offered and the novelty of this concept: the original concept was intended to cover only voice communication, but this application has been extended to include data. A recent study funded by the Commission indicates that by 1995 there are likely to be 330 000 mobile or portable stations in the United Kingdom and the Netherlands.

This figure is based on an extrapolation of the traditional market for private mobile equipment but, given the cheapness of DSRR, it is difficult to estimate at present the inroads it will make into the small business markets (services, agriculture, transport, etc.), and some market studies consider that the rate of penetration will be higher.

Another market study has yielded comparable results: 1.2 million users in the Community in 1995. However, the study specifies that a very large proportion of them do not at present use public or private radio communications systems. They will buy DSRR, however, because of the low cost of the equipment, the absence of charges for use without a relay, and the service rendered.

1.4 Limitations of existing short-range radio communications

Professionals will be able to use public services such as GSM or DECT throughout the Community. These systems are connected up to the public switched network but they are much more expensive than DSRR. Professionals can also use private network equipment, but that presupposes obtaining a frequency. In several Member States public demand can no longer be satisfied because the private networks are saturated. DSRR will offer a new opportunity for obtaining a frequency without having to get authorization from the national administration to use it in a given service area. Allocating frequencies by sharing the frequency spectrum resource will make it possible to use the equipment without interference and with a large measure of mobility.

2. Potential benefits of digital short-range radio (DSRR)

There is unanimous agreement among European manufacturers and users that the DSRR approach is the most appropriate for Europe in the medium and long term for this category of mobile services. Users will be able to benefit to the full from the advantages of the single market of 1992, using their equipment throughout the Community without the need for specific authorization from the national administration if they use two sets of mobile equipment or with the authorization of the national administration if a relay is used. The DSRR approach offers the following benefits:

- DSRR will offer major benefits to private and business users and will stimulate the development and exploitation of major new market opportunities for European industry;

- European industry will be developing a system and products, and will thus acquire greater experience in consumer electronics;
- DSRR will provide European industry with an advanced technology with considerable potential for world-wide sales and distribution opportunities;
- the successful development and implementation of DSRR will provide the necessary technical and operational framework to facilitate the introduction of a universal mobile telecommunications system as the successor to DSRR.

Another advantage of DSRR is that it uses the voice coders developed for the GSM system. In the case of DSRR the rate is 16 k/bit per second. As a result of DSRR using the GSM coder, European industry will benefit from longer series for this comparatively expensive equipment.

Lastly, DSRR has the advantage of being technologically far more efficient in the use of the frequency spectrum than conventional private systems.

3. ETSI standard for DSRR

The ETSI Technical Subcommittee RES 3 was given the task of specifying the technical standard for DSRR. Following a reorganization within ETSI the work was transferred from RES 3 to RES 7. The work is being supported by the European industry via ECTEL (European Telecommunications and Professional Electronics Association).

DSRR sets are low-power transmitters-receivers operating either in simplex mode in the 933-935 MHz band or in semi-duplex or full-duplex mode in the 933-935 MHz band in association with 888-890 MHz.

Direct digital modulation of the carrier is used to send the selective signalling code and the voice or data.

DSRR sets are equipped with:

- automatic multi-channel access with no need for a central monitor;
- a selective signalling code;
- DSSRs may use the simplex, the semi-duplex and the full-duplex mode. Base, mobile and portable relay stations may be used.

3.1 Simplex, one-frequency operating mode

When the simplex operating mode is used, two-way communications can be established between portable stations and/or mobile stations.

In stand-by mode all the stations receive one or other of the monitoring channels.

3.2 Semi-duplex, two-frequency operating mode

When the two-frequency mode is used, two-way communications are possible between the base station and the portable set or between mobile sets on vehicles.

When the two-frequency mode is used, two-way communications are possible between the base stations and the portable set and/or the mobile set.

In order to enable base stations to monitor the use of the traffic channel, all the base stations operating in two-frequency mode, whether they are regarded as relay stations or as base stations, operate in full-duplex mode with continuous transmission and reception on the traffic channel.

In order to select the channel without traffic, all the base stations are capable of receiving the frequencies transmitted by the base station and those transmitted by the mobile station.

4. Time scale for the introduction of DSRR

4.1 Time scale for the completion of a single standard

Harmonization implies the use of a single European standard. The DSRR specifications will cover all aspects of the system and a timetable for completing the specifications has been agreed by ETSI. The date for completion of the 1 ETS is the end of 1990 and the date of completion of the standard following a public enquiry is October 1991. Member States should ensure that progress towards the introduction of DSRR can be maintained and that DSRR can be introduced by the end of 1993.

4.2 Time scale for manufacturers to produce equipment

Manufacturers should continue to support the work of ETSI as at present. They must also be prepared to manufacture their equipment to the ETSI standard as soon as possible.

5. Frequency requirements

A prerequisite for the successful introduction of a fully harmonized DSRR service is the availability of common frequencies throughout the European Community. CEPT has adopted recommendation T/R 75-02 designating the 888-890 MHz frequency band in association with 933-935 MHz for DSRRs using the one or two frequency transmission mode. It is absolutely essential that the frequencies should be common throughout the Community to enable European citizens to use their equipment in all twelve Member States. This equipment does not require frequencies to be allocated by the telecommunications regulatory authorities. The coordinated and timely availability of the necessary common frequencies is imperative if a fully harmonized system is to be introduced.

6. Objective of the proposed Directive

To maintain progress in the areas described above, it is necessary to guarantee:

- the completion of the DSRR specifications (1 ETS) by October 1991;
- the development of the ETS in 1992 and its completion in early 1993;
- the coordinated introduction of DSRR according to a strict timetable;
- the availability of common, Europe-wide frequencies for the introduction of the DSRR system;
- ease of market access for manufacturers through the single market.

In order to guarantee the availability of frequencies for DSRR the Commission has prepared a draft Directive calling for common frequency bands for DSRR throughout the Community. The Directive is based on the work of the CEPT which has recommended the 888-890 MHz band in association with 933-935 MHz for DSRR.

The provision of frequencies in the Member States is laid down by law, regulation or administrative action. Given this situation and the fact that the provision of radio frequencies is the most critical factor in the implementation of DSRR, a Council Directive based on Article 100a of the Treaty is necessary.

The proposed Council Directive on the frequency bands to be designated for the coordinated introduction of digital short-range radio in the Community has the primary objective of ensuring the availability of sufficient frequency resources in order to implement the system at the earliest possible date.

The following additional Community measures are proposed in order to accelerate the development and introduction of the digital short-range radio communication service on the basis of the frequencies set out in the Directive:

- the Commission will give high priority to the mutual recognition of telecommunications equipment type approval and the specification of the appropriate European telecommunications standard. This will facilitate international "roaming" and promote the market for DSRR;
- the Commission will apply strictly Council Directive 83/189/EEC on the provision of information in the field of technical standards and regulations, and Council Decision 87/95/EEC on standardization in the field of information technology and telecommunications.

Finally, the Commission in collaboration and in consultation with interested parties will help develop a strategy for the development of GSM, ERMES, DECT, DSRR and other private mobile systems into a universal personal communications system.

The proposals will make it possible to take an important step forward for the introduction of DSRR throughout the Community and substantially improve the development of advanced telecommunications services and networks as requested by the Council on 17 December 1984.

The Council is therefore requested:

- to adopt the attached proposal for a Directive;
- to take note of the additional preparatory measures which the Commission will undertake in close cooperation and collaboration with ETSI and CEPT.

Proposal for a
COUNCIL DIRECTIVE
on the frequency bands to be designated for the
coordinated introduction of digital short-range radio
(DSRR) in the Community

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community,
and in particular Article 100a thereof,

Having regard to the proposal from the Commission,¹

In cooperation with the European Parliament,²

Having regard to the opinion of the Economic and Social Committee,³

1. Whereas Council Recommendation 84/549/EEC⁴ calls for the introduction of services on the basis of a common harmonized approach in the field of telecommunications;
2. Whereas in its Resolution of 30 June 1988 on the development of the common market for telecommunications services and equipment,⁵ the Council calls for the promotion of Europe-wide services according to market requirements;
3. Whereas the resources offered by modern telecommunications networks should be utilized to the full for the economic development of the Community;

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4 OJ No L 298, 16.11.1984, p. 49.

5 OJ No C 257, 4.10.1988, p. 1.

4. Whereas Council Directive 89/336/EEC of 3 May 1989 on the approximation of the laws of the Member States relating to electromagnetic compatibility⁶ is applicable, and particular care should be taken to avoid harmful electromagnetic interference;

5. Whereas current short-range systems in use in the Community, and the frequency bands in which they operate, vary widely and do not allow the benefits of Europe-wide services or the economies of scale associated with a truly European market to be enjoyed;

6. Whereas the work to be carried out in this area should take full account, inter alia, of the framework constituted by the provisions of Council Directive 83/189/EEC of 28 March 1983 establishing a procedure for the provision of information in the field of technical standards and regulations,⁷ as last amended by Decision 90/230/EEC,⁸ Council Directive 86/361/EEC of 24 July 1986 on the initial stage of the mutual recognition of type approval for telecommunications terminal equipment⁹ and Council Decision 87/95/EEC on standardization in the field of information technology and telecommunications;¹⁰

7. Whereas the European Telecommunications Standards Institute (ETSI) is currently drafting the European telecommunications standard (ETS) for digital short-range radio (DSRR);

6 OJ No L 139, 23.5.1989, p. 19.

7 OJ No L 109, 26.4.1983, p. 8.

8 OJ No L 128, 18.5.1990, p. 15.

9 OJ No L 217, 5.8.1986, p. 21.

10 OJ No L 36, 7.2.1987, p. 31.

8. Whereas that standard must take account of the safety of users and the need for Europe-wide interoperability;
9. Whereas the implementation of DSRR in Europe will provide a unique opportunity to establish a truly European and very inexpensive short-range digital radio system and DSRR will not normally be connected to the public network;
10. Whereas it must be possible for users of DSRR terminals in a Member State to use their equipment in all the other Community Member States;
11. Whereas ETSI has estimated that DSRR will require 2 x 2 MHz in all the Member States;
12. Whereas the European Conference of Postal and Telecommunications Administrations (CEPT) has adopted Recommendation T/R 20-10 on DSRR;
13. Whereas the CEPT has chosen the common European frequency bands 888-890 MHz and 933-935 MHz for DSRR in accordance with CEPT Recommendation T/R 24-04;
14. Whereas DSRR should be given priority and protected in the 888-890 MHz and 933-935 MHz bands; whereas, in view of the particular features of the system, protection of the monitoring channels (channels 1 and 79) is essential;
15. Whereas low-power applications exist at these frequencies;
16. Whereas Council Directive .../.../... of ... on the approximation of the laws of the Member States concerning telecommunications terminal equipment, including the mutual recognition of their conformity,¹¹ will allow the rapid establishment of common conformity specifications for DSRR;

11 OJ No L

17. Whereas the establishment of DSRR in the Community depends on the allocation and availability of a frequency band in order to transmit and receive between base stations and mobile stations;
18. Whereas the availability of the full range of the abovementioned frequency band will be indispensable for the establishment of DSRR on a Europe-wide basis.

HAS ADOPTED THIS DIRECTIVE:

Article 1

For the purposes of this Directive, "Digital Short-Range Radio - DSRR" means any equipment conforming to the European telecommunications standard (ETS) for this type of equipment.

Article 2

1. Member States shall designate the frequency bands indicated in CEPT Recommendation T/R 75/02 (888-890 and 933-935 MHz) for DSRR systems by 1 January 1992.
2. DSRR systems shall have priority and shall be protected in the designated frequency bands.

Article 3

1. Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive by 31 December 1991, and shall forthwith inform the Commission thereof.

The provisions adopted by Member States shall contain a reference to this Directive or be accompanied by such a reference on official publication. Details of this reference shall be decided by the Member States.

2. Member States shall communicate to the Commission the text of the provisions of national law which they adopt in the field governed by this Directive.

Article 4

The Commission shall report to the Council on the implementation of this Directive by the end of 1995.

Article 5

This Directive is addressed to the Member States.

Done at Brussels,

For the Council
The President

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